New Machine Inspection and Installation PROCEDURE

for

SUNNEN® VERTICAL HONING SYSTEM

CE

Model: SV-490 Series

READ THE FOLLOWING INSTRUCTIONS THOROUGHLY AND CAREFULLY BEFORE UNPACKING, INSPECTING, OR INSTALLING THE SUNNEN® VERTICAL HONING SYSTEM.

"SUNNEN AND THE SUNNEN LOGO ARE REGISTERED TRADEMARKS OF SUNNEN PRODUCTS COMPANY."

SUNNEN® PRODUCTS COMPANY • 7910 MANCHESTER ROAD • ST. LOUIS, MO 63143, U.S.A. • PHONE: 314-781-2100

GENERAL INFORMATION

The Sunnen® equipment has been designed and engineered for a wide variety of parts within the capacity and limitation of the equipment. With proper care and maintenance this equipment will give years of service.

READ THE FOLLOWING INSTRUCTIONS CAREFULLY AND THOROUGHLY BEFORE UNPACKING, INSPECTING, OR INSTALLING THIS EQUIPMENT.

IMPORTANT: Read any supplemental instructions BEFORE installing this equipment. These supplemental instructions give you important information to assist you with the planning and installation of your Sunnen equipment.

Sunnen Technical Service Department is available to provide telephone assistance for installation, programming, & troubleshooting of your Sunnen equipment. All support is available during normal business hours, 8:00 AM to 4:30 PM Central Time.

Review all literature provided with your Sunnen equipment. This literature provides valuable information for proper installation, operation, and maintenance of your equipment. Troubleshooting information can also be found within the Instructions. If you cannot find what you need, call for technical support.

Where applicable, programming information for your Sunnen equipment is also included. Most answers can be found in the literature packaged with your equipment.

Help us help you. When ordering parts, requesting information, or technical assistance about your equipment, please have the following information available:

- Have ALL MANUALS on hand. The Customer Services Representative or Technician will refer to it.
- Have Model Number and Serial Number printed on your equipment Specification Nameplate.
- Where Applicable: Have Drive model and all nameplate data. Motor type, brand, and all nameplate data.

For Troubleshooting, additional information may be required:

- Power distribution information (type - delta, wye, power factor correction; other major switching devices used, voltage fluctuations)
- Installation Wiring (separation of power & control wire; wire type/class used, distance between drive and motor, grounding).
- Use of any optional devices/equipment between the Drive & motor (output chokes, etc.).

For fast service on your orders call:

Sunnen Automotive Customer Service toll free at: 1-800-772-2878
Sunnen Industrial Customer Service toll free at: 1-800-325-3670
Customers outside the USA, contact your local authorized Sunnen Distributor.
Additional information available at: http://www.sunnen.com or e-mail: sunnen@sunnen.com

NOTE: Sunnen reserves the right to change or revise specifications and product design in connection with any feature of our products contained herein. Such changes do not entitle the buyer to corresponding changes, improvements, additions, or replacements for equipment, supplies or accessories previously sold. Information contained herein is considered to be accurate based on available information at the time of printing. Should any discrepancy of information arise, Sunnen recommends that user verify the discrepancy with Sunnen before proceeding.

ESD PREVENTION REVIEW

Let's review the basics of a sound static control system and its effective implementation. First, in the three step plan:

1. Always ground yourself when handling sensitive components or assemblies.
2. Always use a conductive or shielded container during storage or transportation. These materials create a Faraday cage which will isolate the contents from static charges.
3. Open ESD safe containers only at a static safe work station.

At the static safe work station, follow these procedures before beginning any work:

A. Put on your wrist strap or foot grounding devices.

B. Check all grounding cords to make sure they are properly connected to ground, ensuring the effective dissipation of static charges.

C. Make sure that your work surface is clean and clear of unnecessary materials, particularly common plastics.

D. Anti-static bubble wrap has been included for use at the machine when an ESD safe workstation is not available.

You are now properly grounded and ready to begin work. Following these few simple rules and using a little common sense will go a long way toward helping you and your company in the battle against the hazards of static electricity. When you are working with ESD sensitive devices, make sure you:

GROUND

ISOLATE

NEUTRALIZE

SUNNEN® LIMITED PRODUCT WARRANTY

Sunnen® Products Company and its subsidiaries (SPC) warrant that all new SPC honing machines, gaging equipment, tooling, and related equipment will be free of defects in material and/or workmanship for a period of one year from the date of original shipment from SPC.

Upon prompt notification of a defect during the one-year period, SPC will repair, replace, or refund the purchase price, with respect to parts that prove to be defective (as defined above). Any equipment or tooling which is found to be defective from improper use will be returned at the customer's cost or repaired (if possible) at customer's request. Customer shall be charged current rates for all such repair.

Prior to returning any SPC product, an authorization (RMA#) and shipping instructions must be obtained from the Customer Service Department or items sent to SPC will be returned to the customer.

Warranty Limitations and Exclusions This Warranty does not apply to the following:

- Normal maintenance items subject to wear and tear: (belts, fuses, filters, etc).
- Damages resulting from but not limited to:
  - › Shipment to the customer (for items delivered to customer or customer's agent F.O.B., Shipping Point)
  - › Incorrect installation including improper lifting, dropping and/or placement
  - › Incorrect electric power (beyond +/- 10% of rated voltage) including intermittent or random voltage spikes or drops
  - › Incorrect air supply volume and/or pressure and/or contaminated air supply
  - › Electromagnetic or radio frequency interference from surrounding equipment (EMI, RFI)
  - › Storm, lightning, flood or fire damage
  - › Failure to perform regular maintenance as outlined in SPC manuals
  - › Improper machine setup or operation causing a crash to occur
  - › Misapplication of the equipment
  - › Use of non-SPC machines, tooling, abrasive, fixturing, coolant, repair parts, or filtration
  - › Incorrect software installation and/or misuse
  - › Non-authorized customer installed electronics and/or software
  - › Customer modifications to SPC software

THE LIMITED WARRANTY DESCRIBED HEREIN IS EXPRESSLY IN LIEU OF ALL ANY OTHER WARRANTIES. SPC MAKES NO REPRESENTATION OR WARRANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER. SPC IS NOT RESPONSIBLE FOR THE IMPROPER USE OF ANY OF ITS PRODUCTS. SPC SHALL NOT BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO: LOSS OF USE, REVENUE, OR PROFIT. SPC ASSUMES NO LIABILITY FOR PURCHASED ITEMS PRODUCED BY OTHER MANUFACTURERS WHO EXTEND SEPARATE WARRANTIES. REGARDLESS OF ANY RIGHTS AFFORDED BY LAW TO BUYER, SPC's LIABILITY, IF ANY, FOR ANY AND ALL CLAIMS FOR LOSS OR DAMAGES WITH RESPECT TO THE PRODUCTS, AND BUYER'S SOLE AND EXCLUSIVE REMEDY THEREFORE, SHALL IN ALL EVENTS BE LIMITED IN AMOUNT TO THE PURCHASE PRICE OF THAT PORTION OF THE PRODUCTS WITH RESPECT TO WHICH A VALID CLAIM IS MADE.

Shipping Damages

Except in the case of F.O.B., Buyer's destination shipments, SPC will not be liable for any settlement claims for obvious and/or concealed shipping damages. The customer bears the responsibility to unpack all shipments immediately and inspect for damage. When obvious and/or concealed damage is found, the customer must immediately notify the carrier's agent to make an inspection and file a claim. The customer should retain the shipping container and packing material.

SUNNEN® SOFTWARE LICENSE AGREEMENT

This document is a Legal Agreement between you, as user and licensee (Licensee), and Sunnen® Products Company (SPC) with respect to preprogrammed software (Software) provided by SPC for use on SPC Equipment. By using the Software, you, as Licensee, agree to become bound by the terms of this Agreement.

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Any alteration or reverse engineering of the software is expressly forbidden and is in violation of this agreement.

SPC reserves the right to update the software covered by this agreement at any time without prior notice and any such updates are covered by this agreement.

SAFETY INSTRUCTIONS

READ FIRST

This machine, like any equipment, may be dangerous if used improperly. Please read all warnings and instructions before attempting to use this machine.

Always disconnect power at main enclosure before servicing machine.[1]

Always wear eye protection when operating this machine.

NEVER open or remove any machine cover or protective guard with power "ON." Always disconnect power at main enclosure before servicing this equipment.[1]

DO NOT attempt any repair or maintenance procedure beyond those described in this book. Contact your Sunnen® Field Service Engineer or Technical Services Representative for repairs not covered in these instructions.

Due to the wide variety of machine configurations, all possibilities cannot be described in these instructions. Instructions for safe use and maintenance of optional equipment ordered through Sunnen, will be provided through separate documentation and/or training provided by your Sunnen Field Service Engineer or Technical Services Representative.

DO NOT attempt to defeat any safety device on this machine or on any of the optional equipment.

If specially built automation components are added to this system, be sure that safety is not compromised. If necessary, obtain special enlarged work area safety system from Sunnen Products Co.

CE Indicates CE version ONLY.

Important information to assist you with the unpacking and installation of your Sunnen Vertical Honing System.

[1] DO NOT touch electrical components until main input power has been turned off and *CHARGE* lamps are extinguished. WARNING: The capacitors are still charged and can be quite dangerous.

IMPORTANT NOTE

The temperature requirements of the Sunnen® SV490 Vertical Honing Machine have been established as 35 degrees C (95 degrees F). Above this temperature, an optional cooler will be available to handle temperatures from 35º to 46º C (95º to 115º F). IT IS NOT recommended that the SV Machine be operated at temperatures above 46º C (115º F). Sunnen Products Company warrants the SV Machine for operating environments up to 35ºC (95º F). For operating environments of 35º to 46º C (95º to 115º F) the warranty only applies if the optional cooler is installed on the Machine. No warranty coverage is offered for operating environments above 46º C (115º F).

INTRODUCTION

This Instruction Manual provides information required to install, operate, and maintain Sunnen® Vertical Honing Machine.

When ordering parts for, or requesting information about your Machine, include model and serial numbers, located on Electrical Enclosure of your Machine.

In this book the CE symbol indicates steps or information that are only for CE version of this machine. The CE version is constructed to meet highest level of safety standards as required by the European Machinery Directive. Required for European market, this CE version is available for any customer. The regular version of this machine is quite safe for any operator exercising a normal degree of caution associated with machine tool use. The CE version provides an extra level of protection by minimizing risks of operator carelessness.

The SV410 Vertical Honing Machine is to be used for finishing bores in small workpieces. In finishing bores, this machine can achieve any or all of following results: fast stock removal, consistent final size, a high degree of cylindrically, fine surface finish. To achieve best results and ensure safe operation, ONLY Sunnen Tools and Abrasives are to be used in the SV490.

NEW MACHINE
INSPECTION & INSTALLATION PROCEDURE
FOR SUNNEN® VERICAL HONING SYSTEM

GENERAL

Consult this section when unpacking, inspecting, and installing Sunnen® Vertical Honing Machine *(see Figure 1)*. Hereafter referred to as the machine.

TOOLS & MATERIALS

The following tools and materials are required for unpacking and installing of your Machine:

Knife	Hex Wrenches
Hammer	Open End Wrenches
Crow Bar	Cleaning Solvent
Tin Snips	Screwdriver (Std)
Slip Joint Pliers	Forklift

INSTALLATION

Read the following instructions carefully and thoroughly before unpacking, inspecting and installing your Machine. All references to right and left in these instructions are, unless otherwise noted, as seen by operator as one looks at Machine or assembly being described *(refer to Figure 1)*.

NOTE: When ordering parts for, or requesting information about your Machine, include Model and Serial Numbers printed on Nameplate.

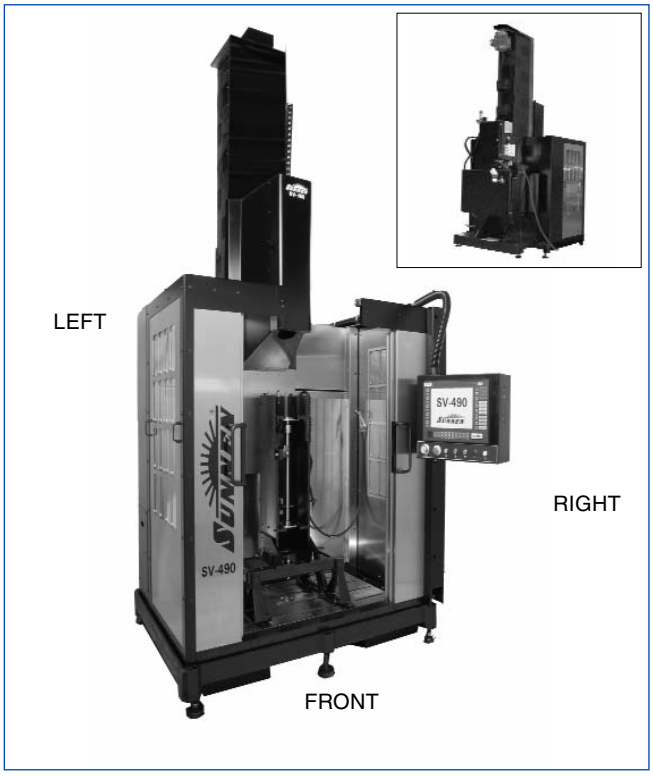

FIGURE 1, Vertical Honing Machine

1. Move Machine to staging/unpacking area.
2. Remove plastic wrap.
3. Remove top and sides from packing crate.
4. Remove all loose components from crate.
5. Check all components against packing list
6. Inspect Machine and components for dents, scratches, or damage resulting from improper handling, by carrier. If damage is evident, immediately file a claim with carrier.

CAUTION

Machine Base may be forked from any side. DO NOT support weight of machine on bottom of Electrical Enclosure when lifting or moving.

7. Remove Bolts securing Machine to Skid.
8. Using a forklift remove machine from skid and move to desired location and lower into place *(see Figure 2)*.

While machine is up in the air, screw in Four (4) Corner Feet and Two (2) Center Feet.

NOTE: Machine should be located on a leveled concrete floor away from heavy traffic. Allow at least 1m (38in.) around enclosure to any adjacent equipment and walls. Refer to Figure 1-A, Floor Plan Layout.

9. Level and stabilize Machine by placing a millwright's level on ground Table Base *(see Figure 3)*. Machine needs to leveled both from front to back and left to right.

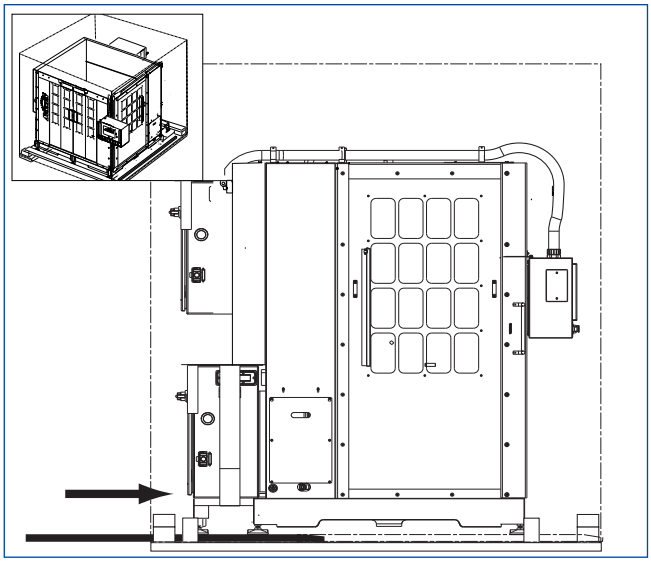

FIGURE 2, Fork Lift

NOTE: Machine does not need to be bolted to floor but should be set on 1/2" thick steel pads.

• Begin by screwing ALL six (6) Adjustable Feet all the way into the Table Base (until table base is resting on the floor).
• Then check to see if any of the feet are not touching the floor or touching the floor only loosely. If so, bring foot down to just touch floor.
• Place Level front to back on right side of table and adjusting Leveling Bolts in each of the right front & rear feet as required, until table base is within 0,0003 m/m.
• Re-check and adjust any feet that are loose or not touching, until they just touch the floor.
• Repeat for left side of table.
• Re-check and adjust any feet that are loose or not touching, until they just touch the floor.
• Move to front of table and check front of table left to right for level. Adjusting Leveling Bolt in which ever of the feet is lowest as required, until table base is within 0,0003 m/m.
• Adjust center Leveling Bolts at front of table until it just touches the floor.
• Move to rear of table and check rear of table left to right for level. Adjusting Leveling Bolt in which ever of the feet is lowest as required, until table base is within 0,0003 m/m.

NOTE: In most cases the lowest foot should be on the same side in the rear as the one that was just adjusted on the front of the table.

• Adjust center Leveling Bolts at rear of table until it just touches the floor.
• Recheck table front to back and left to right.
• Tighten Jam Nuts on all the feet to lock bolts in place.
• After leveling Table Base using by adjusting the feet; place shims under table base wherever the base is not in direct connect with the floor.

NOTE: This is very important. If Table Base is not supported it may bowl when the weight of the fixture and workpiece are installed.

10. ATTENTION - Remove steel Cross Bracket that supports machine during shipping *(see Figure 4)*.

11. Adjust Leveling Bolts as required to level machine.

12. Remove Operator Control Station from inside of Machine and attach to right front of Guarding as shown *(see Figure 5)*.

13. Remove Hardware securing Wiring Conduit to rear of Machine and tie Wiring Conduit off to side of Machine *(see Figure 6)*.

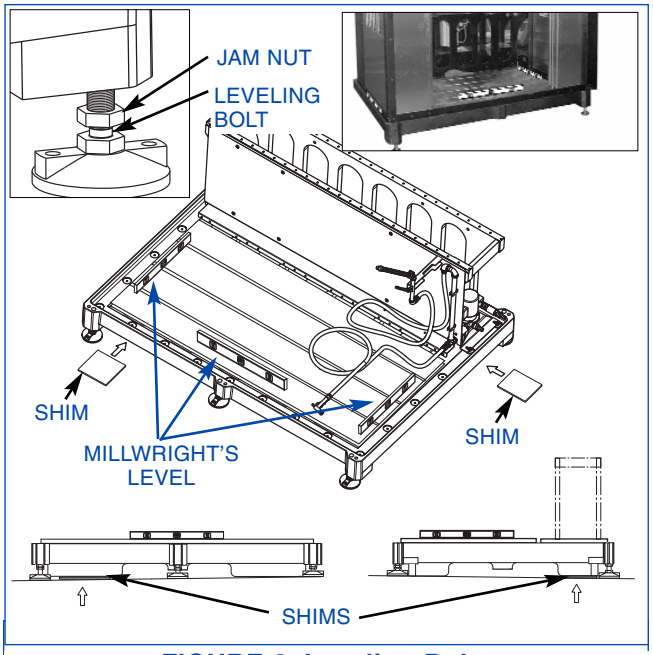

FIGURE 3, Leveling Bolts

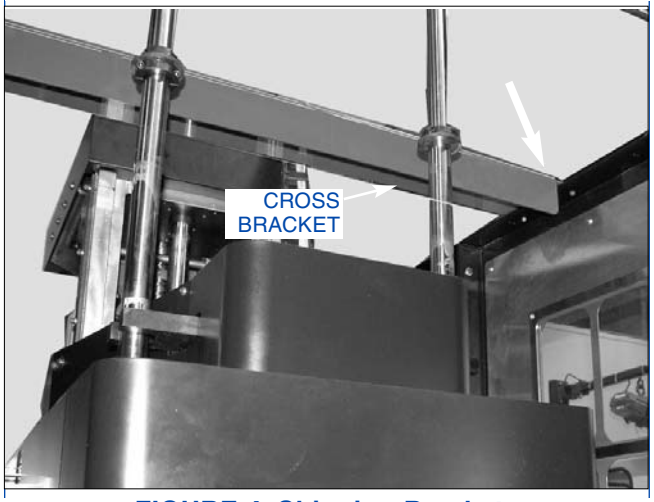

FIGURE 4, Shipping Brackets

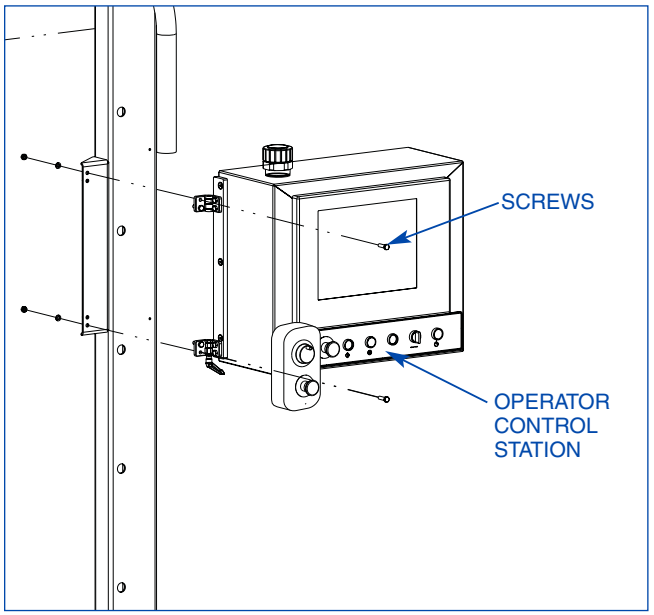

FIGURE 5, Operator Control Station

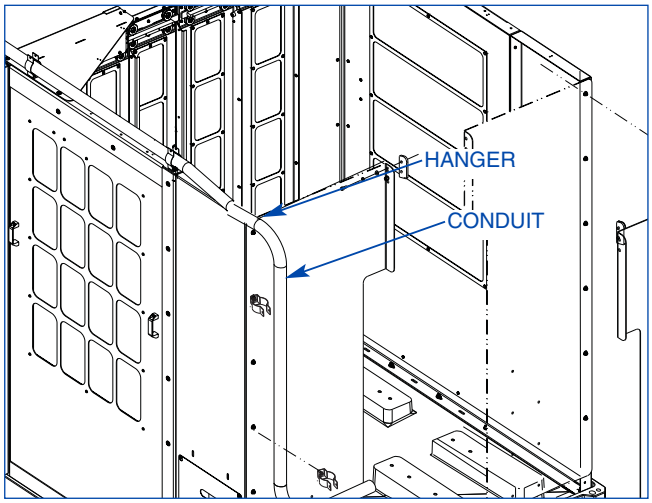

FIGURE 6, Wiring Conduit

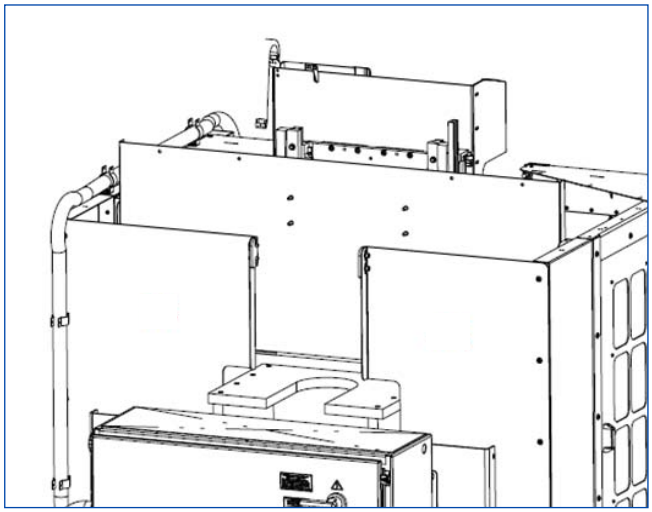

FIGURE 7, Back Panels

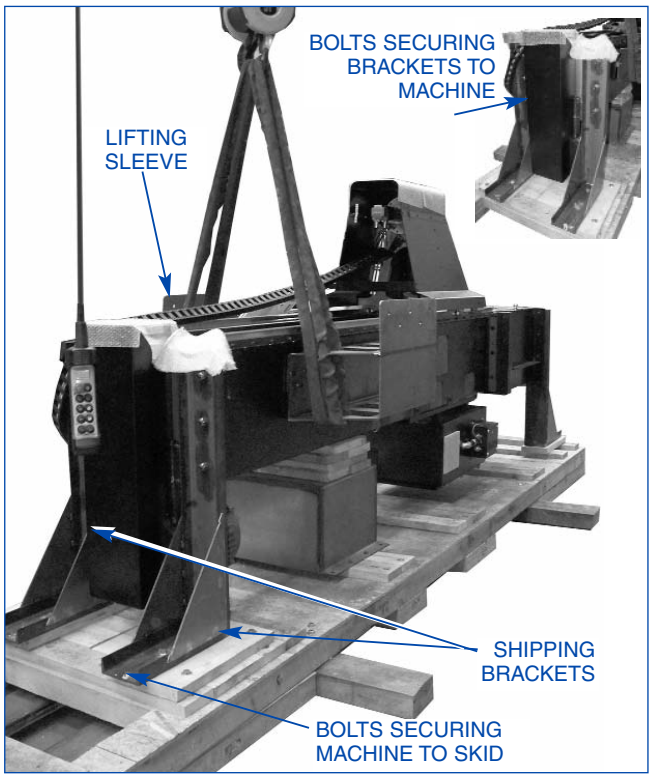

FIGURE 8, Upper Shipping Bracket

14. Remove back panels from machine for column installation *(see Figure 7)*. Lay aside for reinstallation after Column is installed.

Install Column

15. Move Column to staging/unpacking area.

16. Remove plastic wrap.

17. Unbolt Column from Skid *(see Figure 8)*.

18. Run straps thru Lifting Sleeves, provided on sides of Column *(refer to Figure 8)*.

19. Block lower end of column, to kept bottom from kicking out as top end of column is lifted.

20. Using an overhead crane: Hook straps and slowly lift top end of column until top shipping brackets are free of shipping pallet

21. With column now supported by overhead crane; unbolt top shipping bracket and remove *(refer to Figure 8)*.

22. Using an overhead crane: Slowly lift top end of column until column is standing vertical *(see Figure 9)*.

23. With column now supported by overhead crane; unbolt lower shipping bracket from column *(see Figure 10)*.

24. Using overhead crane; lift Column and move into position at rear of machine *(see Figure 11)*.

CAUTION

When position Column Assembly, ensuring assembly clears Guarding.

25. Slowly lower Column Assembly onto Lower Riser Weldment *(see Figure 12)*.

- Position and align Column Assembly into placed with holes in Lower Riser Weldment.
- With Column aligned with Lower Riser Weldment; install using eight (8) Mounting Screws.

FIGURE 9, Lifting Column

26. Tighten Mounting Screws *(see Figure 13)*.

27. Remove lifting straps *(see Figure 14)*.

28. Remove lifting brackets from column.

29. Reattach upper end of Cable Carrier to side of column *(see Figure 15)*.

30. Then reattach Wiring Conduit to rear of Machine *(refer to Figure 5)*.

31. Install Back Panels and Upper Stainless Panels *(see Figure 16)*.

32. Remove Red shipping brackets from side walls and across door opening.

33. If equipped, reinstall Guide Pod Upper Rail Brackets *(see Figure 17)*.

34. Install conduit hangers and position wiring conduit in hangers and secure.

35. Reattach operator console to front of machine and reroute and secure conduit.

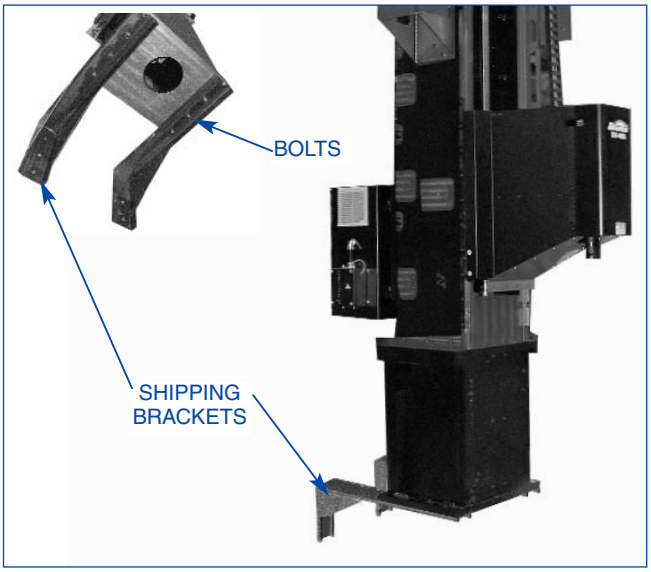

FIGURE 10, Lower Shipping Bracket

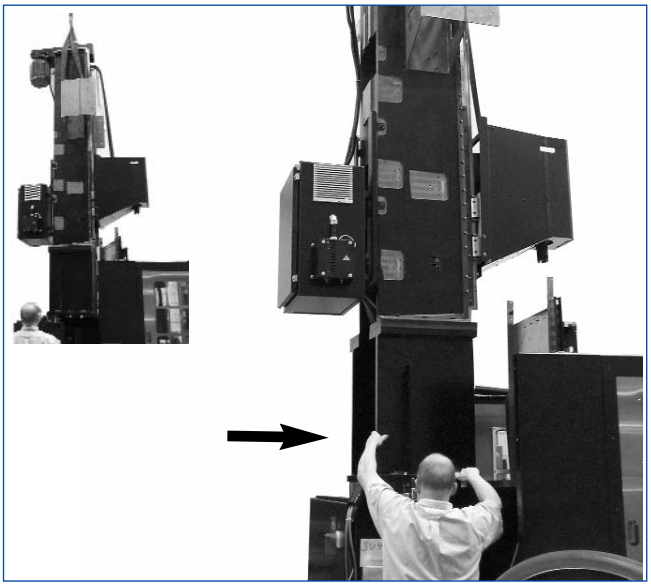

FIGURE 11, Position Column

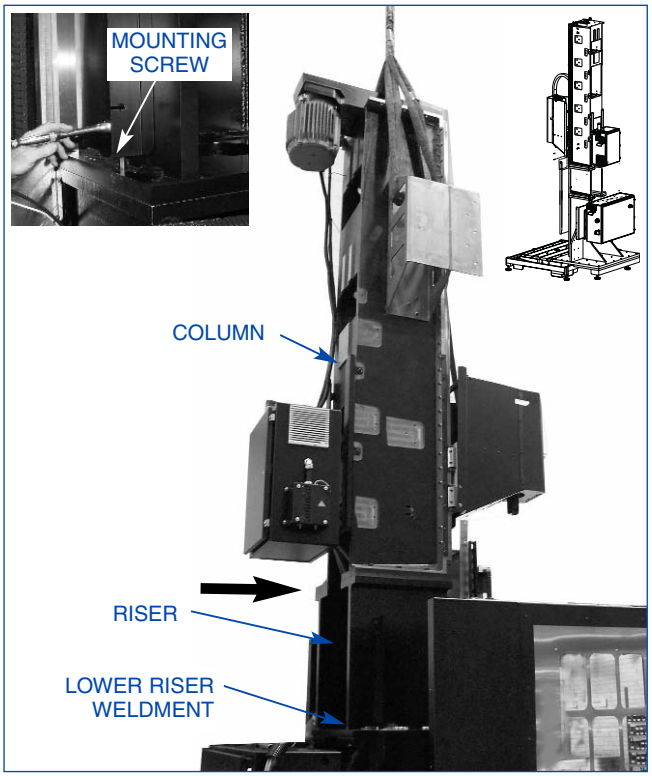

FIGURE 112, Positioning Column on Riser

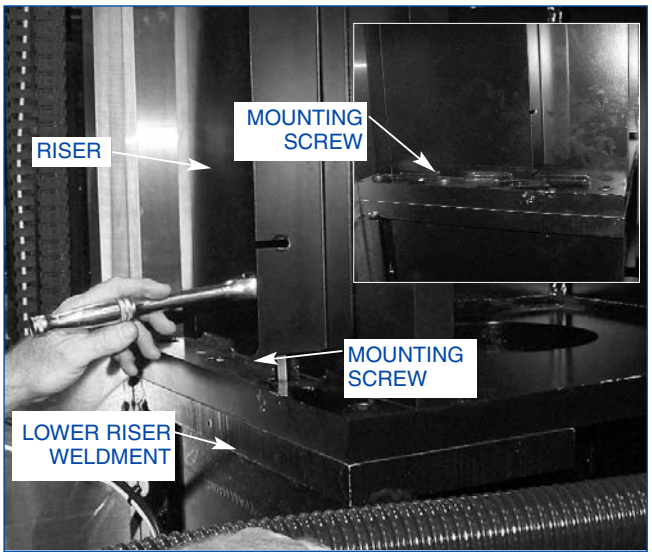

FIGURE 13, Securing Column

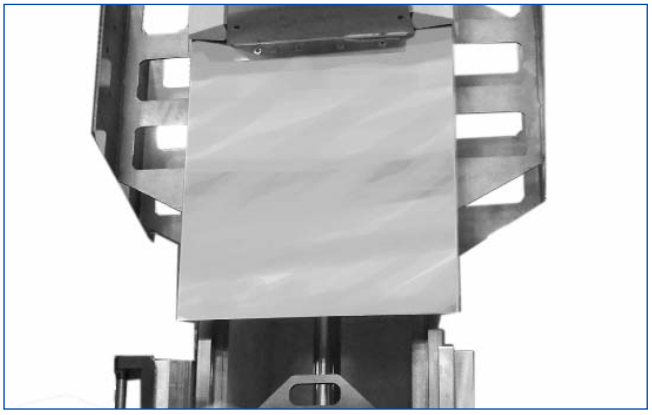

FIGURE 14, Lifting Sleeves

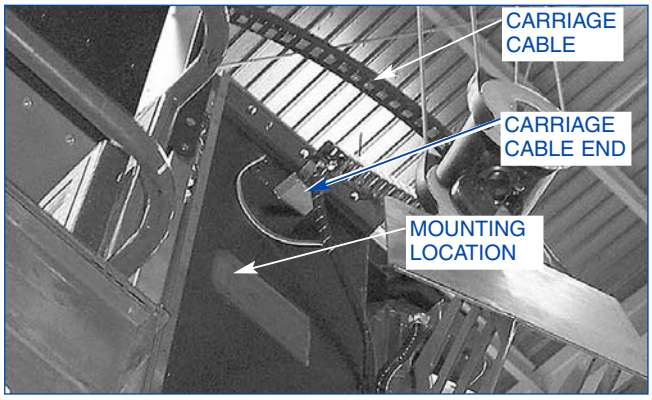

FIGURE 15, Carriage Cable

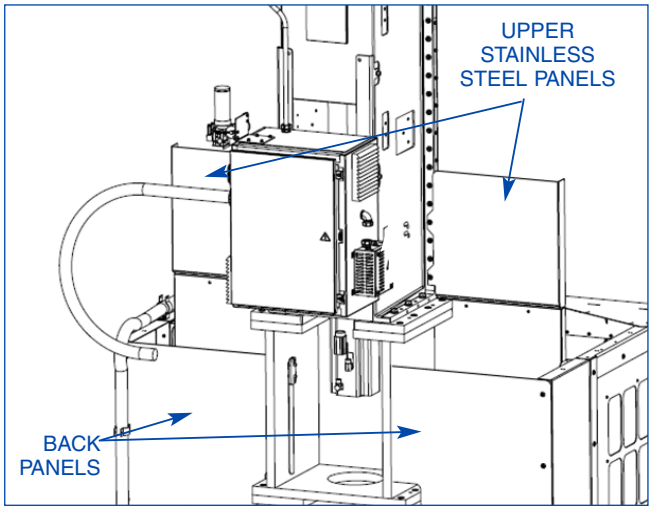

FIGURE 16, Back Panels

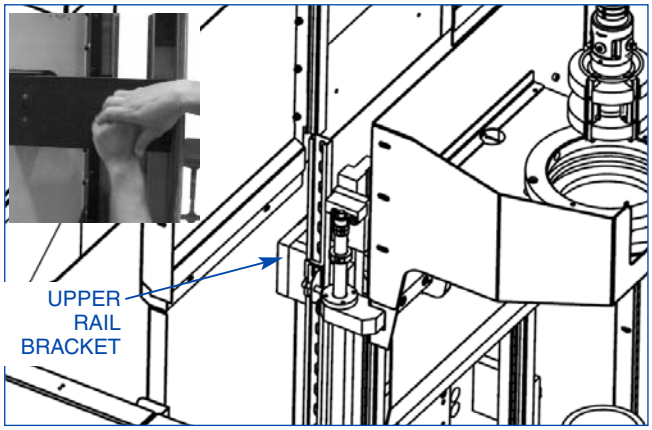

FIGURE 17, Guide Pod

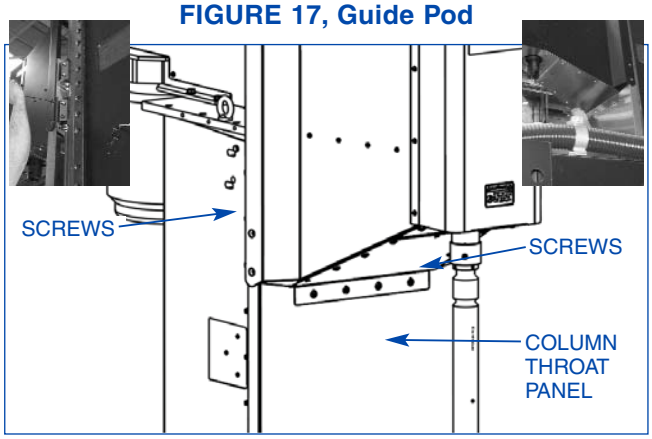

FIGURE 18, Column Throat Panel

36. Reattached column throat panel to spindle housing with screws down both sides and across front *(see Figure 18)*.

37. Wipe all protective shipping oil and grease from Machine. (Clean rust preservative from way bars and any other bright metal surfaces.)

38. If applicable: Position optional coolant system on right side of base.

COLUMN ELECTRICAL CONNECTIONS

All wiring is to be performed by a competent, Licensed Electrician in accordance with all local, state, and federal codes and regulations; along with any special information provided on machine nameplate or electrical specification plate.

CAUTION

All wiring is to be performed by a competent, licensed electrician in accordance with all local, state and federal codes and regulations. FAILURE TO COMPLY CAN RESULT IN PERSONAL INJURY AND DAMAGE TO THE MACHINE.

WARNING

All wiring and electrical equipment service should be performed by authorized personnel ONLY.

1. Open Door to Column Electrical Enclosure.

2. Remove any packing materials from inside of enclosure.

3. Slide wire leads through side of Enclosure and secure Wiring Conduit by tightening Lock Ring on Conduit Connector *(see Figure 19)*.

4. Attach numbered Wire Leads to corresponding numbered locations inside enclosure.

CAUTION

After installation check positions of Dip Switches inside Column Enclosure.

MACHINE ELECTRICAL CONNECTION

All wiring is to be performed by a competent, Licensed Electrician in accordance with all local, state, and federal codes and regulations; along with any special information provided on machine nameplate or electrical specification plate *(see Figure 20)*.

CAUTION

This machine was wired for 460VAC. If it is to be run at 400VAC the taps on the control transformer 1T must be changed. All wiring is to be performed by a competent, licensed electrician in accordance with all local, state and federal codes and regulations. FAILURE TO COMPLY CAN RESULT IN PERSONAL INJURY AND DAMAGE TO THE MACHINE.

WARNING

All wiring and electrical equipment service should be performed by authorized personnel ONLY.

CAUTION

Do not attempt to connect machine if supply voltage is not within acceptable limits as noted on nameplate or electrical specification plate. If supply voltage is not within these limits MACHINE WILL BE DAMAGED.

Verify supply voltage is same as voltage on Machine Nameplate or Electrical Specifications Plate.

NOTE: A pre-drilled hole has been provided in Electrical Enclosure for Electrical Supply Cord (not supplied). Connect Cord as follows *(refer to Figure-20)*.

WARNING

Residual Voltage exists for 2-3 minutes afteraster ON/OFF Switch is turned OFF. Before working inside Enclosure, wait for all fans to stop running to allow drives to discharge.

1. Unlock Door to Electrical Control Enclosure. Loosen Safety Latches on door(s) to enclosure, using a screwdriver.

CAUTION

Door is equipped with lockable Safety Door Latch. Door should be closed and latched during operation to prevent accidental interruption of operation from doors being opened. Door Latch should be Locked-Out and Tagged during servicing to prevent machine from being powered up.

2. Turn Master ON/OFF Switch to OFF position and open Door. (Door WILL NOT open unless Master ON/OFF Switch is in OFF position.)

3. Open Door to enclosure.

WARNING

You must use the hole provided. Drilling any new holes in the electrical enclosure may void the warranty.

4. Remove hole plug located on top, left side of the enclosure. Then install an oil tight fitting.

5. Insert Electrical Supply Cord through Oil Tight Fitting and route to Electrical Disconnect Block.

6. Strip 254 mm (10 in) off cable's outer jacket.

7. Strip 6 mm (1/4 in) of insulation off each wire.

8. Connect Green Wire (GRN) to Terminal PE on Electrical Disconnect Switch (Earth Ground).

9. Connect other three wires to Disconnect Block (1DISC) as noted on Block (L1, L2, L3).

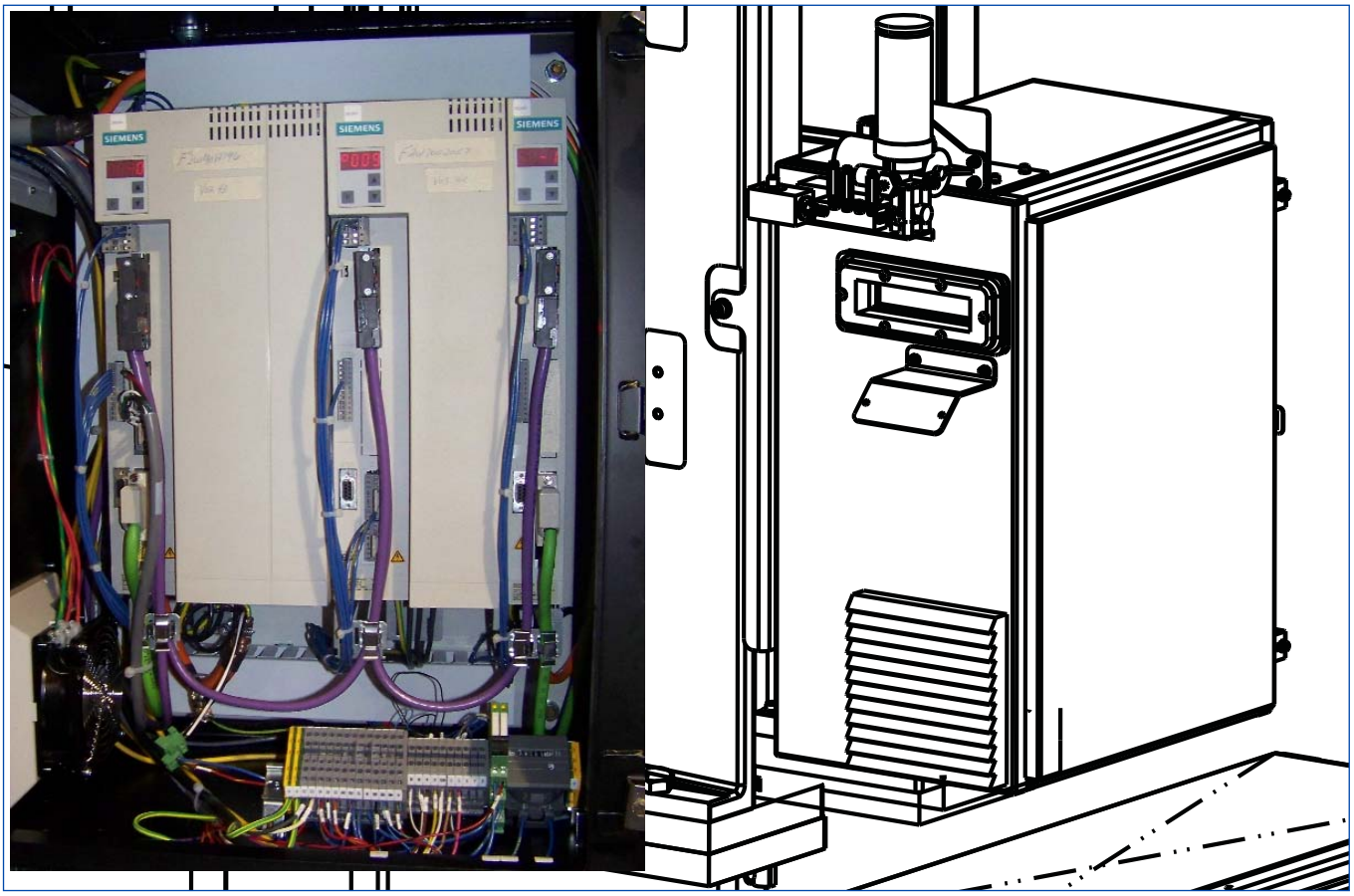

FIGURE 19, Electrical Connections

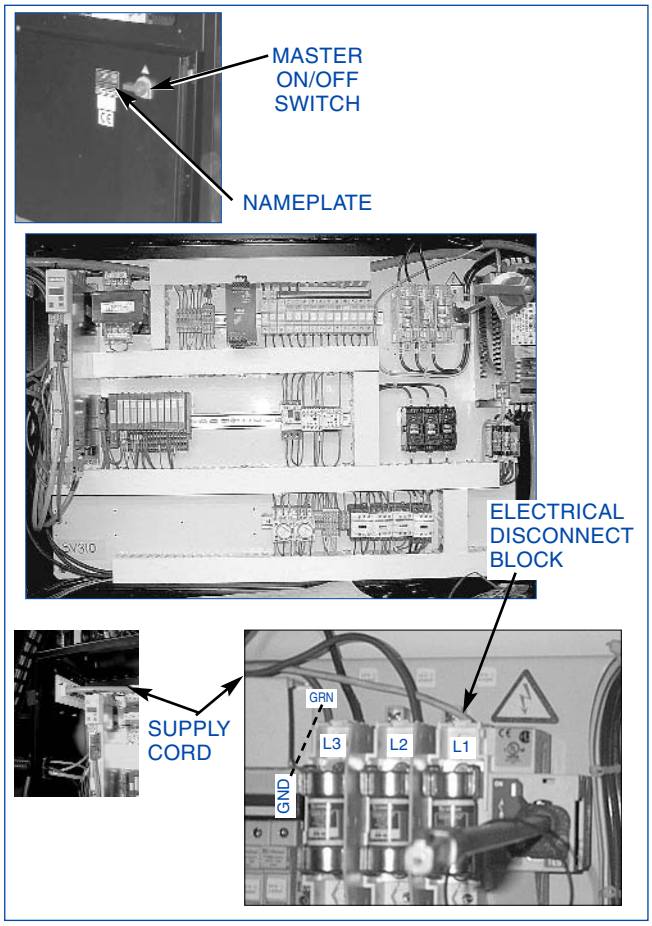

FIGURE 20, Electrical Connection

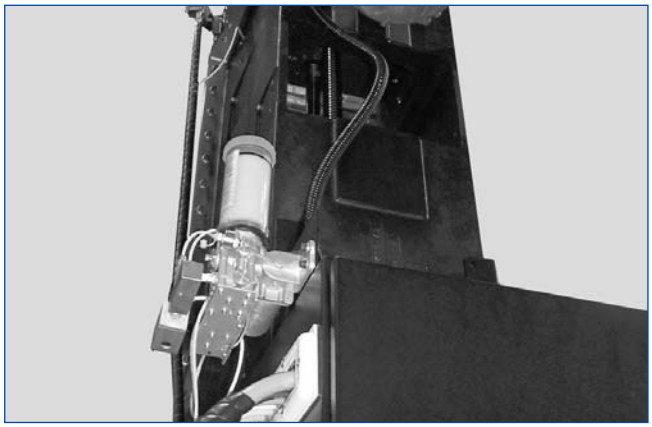

FIGURE 21, Lubricating System

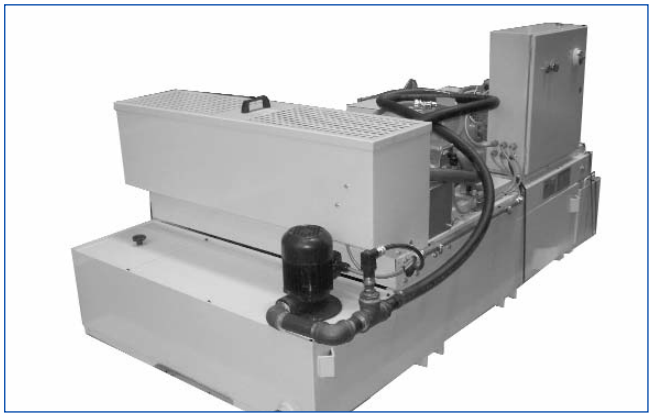

FIGURE 22, Coolant System (opt.)

10. Route and secure Cord inside of Enclosure.
11. Tighten Oil Tight Fitting.
12. Close and secure/lock Door to Enclosure.
13. Route and connect Electrical Supply Cord to factory main power source.
14. Turn ON Master ON/OFF Switch.

LUBRICATING SYSTEM

The machine is equipped with an automatic grease lubricating system.

Grease Reservoir is filled at the factory with Sunnen 90123 (Kluberplex #BEM34-132 or its equivalent) *(see Figure 21)*. System is equipped with a Pressure Switch, which flashes a warning on the operator display screen when the level/pressure drops below minimum requirement.

COOLANT SYSTEM (Optional)

The machine comes with a Sump Pump and a small Reservoir. Because of the numerous application possibilities the machine is not supplied with a coolant system, optional Coolant Systems are available. Placement and system requirements will vary with coolant system used. Sunnen provides several optional coolant systems. Check with your local Sunnen Field Service Engineer or Sunnen Products Company Technical Services for available systems or before installing another manufacturer's system.

IMPORTANT

Operating Instructions and Repair Parts Catalogs for the optional Coolant Systems are supplied by the systems manufacturer.

Fill Coolant Reservoir with either Sunnen Industrial Honing Oil or Sunnen Water-Based Coolant. Refer to Section 4.

COOLANT SYSTEM CONNECTION

The machine comes with a Sump Pump and a small Reservoir. Intake and Outlet Hose Barbs are provided for connecting optional Coolant System *(see Figure 22)*:

CAUTION

Supply coolant pressure should not exceed 20 psi (0,14 MPa).

MAGNETIC SEPARATOR (Optional)

Like the Coolant System, the machine is not supplied with a magnetic separator *(see Figure 23)*. If your application produces large amounts of metal residue, it is recommended that you employ either or both a magnetic separator and filter system. Check with your local Sunnen Field Service Engineer or Sunnen Products Company Technical Services for available options or before installing another manufacturer's system.

SPECIAL FIXTURE (Optional)

Because of the numerous applications possibilities the machine is not supplied with any fixturing, optional fixtures are available. Check with your local Sunnen Field Service Engineer or Sunnen Products Company Technical Services.

OPERATIONAL CHECK

Read Sections 1, 2 and 3 thoroughly and carefully before performing the Operational Check.

NOTE: Power up and start machine to check for proper operation.

1. Release E-STOP and press POWER ON Button.

NOTE: When machine is powered up it should open the "Sunnen" software.

2. Once machine is through initializing, press "F1 Setup Menu."

3. Then press "F2 Install Setup," and follow directions on display screen.

4. Once a setup is install; at Main Menu press "F2 Run Menu."

5. In run settings you can toggle the coolants lines to check the rotation of the Sump Pump Motor. (Rotation of Shaft should be as shown on Motor Cover.)

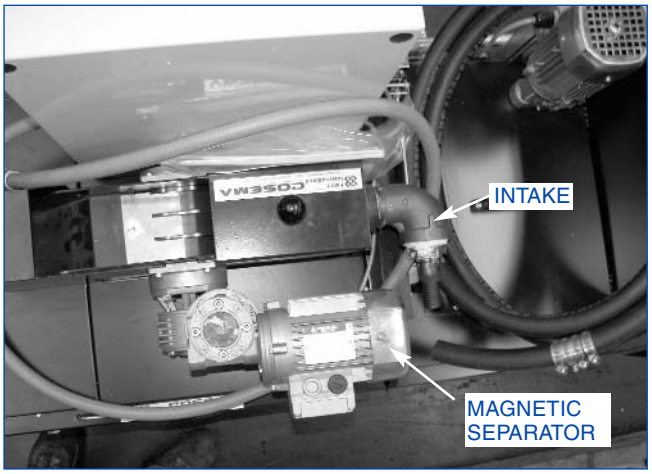

FIGURE 23, Magnetic Separator

6. If rotation is incorrect, turn OFF power to Machine and reverse any two wires (red, white, or black) of electrical supply cord, where they connect to Disconnect Block.

7. Operate Machine and check rotation of optional equipment according to Installation Instruction package with optional equipment.

8. Set up and test all machine functions (refer to IOM, Section 3).

9. After unpacking and installing Machine, clean and lubricate (refer to IOM, Section: 4).

NEW MACHINE
INSPECTION & INSTALLATION PROCEDURE
CHECKLIST
FOR SUNNEN® MODULAR HONING SYSTEM

MECHANICAL

- ❑ 1. Move machine to staging area.
- ❑ 2. Remove shipping carton.
- ❑ 3. Remove all loose components.
- ❑ 4. Check components against list.
- ❑ 5. Inspect Machine and components.
- ❑ 6. Remove Bolts securing Machine to Skid.
- ❑ 7. Lift Machine and install Adjustable Feet.
- ❑ 8. Move machine to desired location.
- ❑ 9. Level machine.
- ❑ 10. Install Column.
- ❑ 11. Make Electrical connections.
- ❑ 12. Attach coolant system.
- ❑ 13. Visual check hoses.
- ❑ 14. Verify all guards are in place.

ELECTRICAL

- ❑ 1. Open doors to enclosure.
- ❑ 2. Route cables and connect to enclosure.
- ❑ 3. Attach power cord.
- ❑ 4. Route and connect cord to power source.
- ❑ 5. Visual check cable connectors.
- ❑ 6. Close doors to enclosure.
- ❑ 7. Connect coolant system to power source.

GENERAL

- ❑ 1. Fill grease lubricating system.
- ❑ 2. Connect coolant system supply hose.
- ❑ 3. Connect coolant system return hose.
- ❑ 4. Fill coolant system reservoir.
- ❑ 5. Perform operational check.

DECLARATION OF CONFORMITY
(CE MACHINES)

EC declaration of conformity

according to the EU Machinery Directive 2006/42/EG, Annex II, 1.A

Manufacturer:
Sunnen Products Co.,
7910 Manchester
63143 St. Louis, Missouri USA

Person residing within the Community authorised to compile the relevant technical documentation:
Julian Hooper
Sunnen Products Ltd.,
Centro 1 Maxted Rd
HP2BL Hemel Hempstead, Hertfordshire

Description and identification of the machinery:

Make:	SV-490	Vertical Honing Machine
Serial no:	XXXX	

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives:

2006/42/EG:2006-05-17	EU Machinery Directive 2006/42/EG
2004/108/EG:2004-12-15	Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC

Reference to the harmonised standards used, as referred to in Article 7(2):

EN 60204-1:2006	Safety of machinery – Electrical equipment of machines – Part 1: General requirements

SAMPLE
CE DOCUMENT

St. Louis, Missouri USA, 2011.11.21

Place, date

Signature
Michael C. Haughey
Chief Operating Officer

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING UNITED STATES PATENTS

4,428,160	5,022,196	5,234,295	5,443,417	6,780,084
4,796,363	5,178,643	5,243,792	5,663,886	7,371,149
4,809,440	5,185,969	5,255,476	5,707,278	7,575,502
4,866,855	5,209,615	5,390,448	6,074,282	7,727,051
4,993,189	5,222,625	5,433,656	6,527,620	

OTHER U.S. AND FOREIGN PATENTS PENDING

SUNNEN®

SUNNEN PRODUCTS COMPANY, ST. LOUIS, MO U.S.A.

LTA1015T / IL0437T

WARNING

An Arc Flash Hazard Exists. Follow safe work practices and wear appropriate Personal Protective Equipment. Follow proper lockout/tagout procedures. *Failure to comply can result in death or injury.*

Like any machinery, this equipment may be dangerous if used improperly. Be sure to read and follow instructions for operation of equipment.

FRACTION / DECIMAL / MILLIMETER EQUIVALENTS CHART

INCH FRACTION	INCH DECIMAL	MILLIMETER	INCH FRACTION	INCH DECIMAL	MILLIMETER	INCH FRACTION	INCH DECIMAL	MILLIMETER
. . . .	.003937	0,1000	9/32	.281250	7,1438	21/32	.656250	16,6688
. . . .	.007874	0,2000	19/64	.296875	7,5406	. . . .	.669291	17,0000
. . . .	.011811	0,3000	5/16	.312500	7,9375	43/64	.671875	17,0656
1/64	.015625	0,3969	. . . .	.314961	8,0000	11/16	.687500	17,4625
. . . .	.015748	0,4000	21/64	.328125	8,3344	45/64	.703125	17,8594
. . . .	.019685	0,5000	11/32	.343750	8,7313	. . . .	.708661	18,0000
. . . .	.023622	0,6000	. . . .	.354331	9,0000	23/32	.718750	18,2563
. . . .	.027559	0,7000	23/64	.359375	9,1281	47/64	.734375	18,6531
1/32	.031250	0,7938	3/8	.375000	9,5250	. . . .	.748031	19,0000
. . . .	.031496	0,8000	25/64	.390625	9,9219	3/4	.750000	19,0500
. . . .	.035433	0,9000	. . . .	.393701	10,0000	49/64	.765625	19,4469
. . . .	.039370	1,0000	13/32	.406250	10,3188	25/32	.781250	19,8438
3/64	.046875	1,1906	27/64	.421875	10,7156	. . . .	.787402	20,0000
1/16	.062500	1,5875	. . . .	.433071	11,0000	51/64	.796875	20,2406
5/64	.078125	1,9844	7/16	.437500	11,1125	13/16	.812500	20,6375
. . . .	.078740	2,0000	29/64	.453125	11,5094	. . . .	.826772	21,0000
3/32	.093750	2,3813	15/32	.468750	11,9063	53/64	.828125	21,0344
7/64	.109375	2,7781	. . . .	.472441	12,0000	27/32	.843750	21,4313
. . . .	.118110	3,0000	31/64	.484375	12,3031	55/64	.859375	21,8281
1/8	.125000	3,1750	1/2	.500000	12,7000	. . . .	.866142	22,0000
9/64	.140625	3,5719	. . . .	.511811	13,0000	7/8	.875000	22,2250
5/32	.156250	3,9688	33/64	.515625	13,0969	57/64	.890625	22,6219
. . . .	.157480	4,0000	17/32	.531250	13,4938	. . . .	.905512	23,0000
11/64	.171875	4,3656	35/64	.546875	13,8906	29/32	.906250	23,0188
3/16	.187500	4,7625	. . . .	.551181	14,0000	59/64	.921875	23,4156
. . . .	.196850	5,0000	9/16	.562500	14,2875	15/16	.937500	23,8125
13/64	.203125	5,1594	37/64	.578125	14,6844	. . . .	.944882	24,0000
7/32	.218750	5,5563	. . . .	.590551	15,0000	61/64	.953125	24,2094
15/64	.234375	5,9531	19/32	.593750	15,0813	31/32	.968750	24,6063
. . . .	.236220	6,0000	39/64	.609375	15,4781	. . . .	.984252	25,0000
1/4	.250000	6,3500	5/8	.625000	15,8750	63/64	.984375	25,0031
17/64	.265625	6,7469	. . . .	.629921	16,0000	1	1.000000	25,4000
. . . .	.275591	7,0000	41/64	.640625	16,2719	1-1/16	1.062500	26,9880

FORMULAS:

MULTIPLY		BY		TO GET
INCHES (in)	x	25.4	=	MILLIMETERS (mm)
FEET (ft)	x	0.3048	=	METERS (m)

MULTIPLY		BY		TO GET
MILLIMETERS (mm)	x	0.03937	=	INCHES (in)
METERS (m)	x	3.281	=	FEET (ft)

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SUNNEN®

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